"Beautiful" Birch for Beautiful Woodwork

THIS book deals with facts only—which everyone about to invest in building should know. It tells in plain English, one by one, the remarkable qualities of the premier hardwood, "Beautiful Birch," tells you how best to select it for its various uses, and in different kinds of buildings and in furniture. So whatever you intend to build, you learn just what "Beautiful Birch" can mean to you for supremely beautiful and economical woodwork.

In this book we prove convincingly the qualities which you seek in a wood for interior work. We point out how remarkably well Birch meets these exacting demands on account of its extreme hardness, its smooth attractive grain, and its basic natural color which offers the proper background for an unusual range of color tones in interior finish work. Modern methods of manufacturing and handling fine hardwoods have added to an extraordinary extent to the possibilities in interior woodwork through the availability of high class Birch veneer especially made for interior paneling.

We show you pictures of homes and magnificent hotels (limited space will not permit showing colleges, office buildings and apartments) in which "Beautiful Birch" woodwork has been chosen by prominent architects who had at their disposal the hardwoods of the world. Thus we show you why "Beautiful Birch" is especially adapted to beautiful woodwork.

Birch, the Versatile

Some woods are good for one thing, some for another. All have their special uses. Some are rigidly restricted to very narrow limits of use; some are very versatile and are well adapted to many purposes.

"Beautiful Birch" is in the versatile class. Its *special use* is as a high-class decorative hardwood. *Wherever* a fine cabinet wood is appropriate, there is the place for "Beautiful Birch." This book will tell you why.

One might almost imagine that "Beautiful Birch" had been designed by nature to fulfill the greatest possible number of

human desires. Out of 134 representative uses of all commercial woods in the United States, this one wood, "Beautiful Birch," finds place in about half.

Such a remarkable record must have a reason—indeed, it has many and definite reasons. One of the principal ones is that Birch, in the hands of skillful architects, builders, finishers and manufacturers, will show with the utmost perfection *any finish* light or dark, natural or stained. And it makes one of the finest bases for white enamel.

As you read, you will see why this is true.

The grain of "Beautiful Birch" has great and pleasing variety, ranging all the way from very plain to very ornate. Of course no printed reproduction can do justice to so subtle a subject as the satiny grain of Birch, but the illustrations in the latter part of this book will give you a faint idea of what you have to choose from.

Birch, the Beautiful

The first quality that must be possessed by a cabinet wood is beauty, of course, and the pre-eminent beauty of Birch is the quality which has given it its common name: "Beautiful Birch."

A Birch board or veneered panel, sanded smooth but unfinished, is a beautiful thing in itself, of dignified and aristocratic looking figure, or grain, and velvety smoothness, without coarse pores or great variations of shade. It has pre-eminently that quality of grain which reveals the wonder of wood in those subdued effects now so much sought after by careful decorators and eminent architects.

Apply a finish, with or without stain, and the beauty is doubled. The velvet becomes satin. The color is enriched. You no sooner see it than *you want it*—want it so much that nothing else will do. The delicate variations of grain and tone immediately form themselves in your mind into your woodwork, *your* doors, *your* sideboard, *your* bookcases, *your* floors. You have thought to find such an effect only in some costly imported hardwood. You resolve to have "Beautiful Birch" and, fortunately, you *can* have it easily.

Homelike residence of Mr. Theodore N. Ripsom, Hempstead, (L. I.) N. Y. It certainly deserves Birch trim and it has it. Mr. Arthur T. Remick, Architect ,New York.

Birch, the Varied

One of the high merits of this wonderful wood is its remarkable variety of figure. The doors and the panel-work in your dining room, for instance, call for a highly figured wood, while the door and window frames and other trim are better in a plainer grain. The sideboard should be ornamental, and the hardwood floors should blend harmoniously with it. "Beautiful Birch" exactly meets every need.

It can be had in inconspicuous grain for general trim.

Veneered doors and paneling show a figure as rich as you could wish.

A few selected boards of Curly Birch for the drawer fronts, etc., of the sideboard, show an entirely different but lustrous and beautiful "changeable silk" effect.

And colors? Without limit. "Beautiful Birch" being by nature of a fine light shade, will give you, with various stains *properly applied* (see page 16) the whole range from lightest to darkest.

With this one wood you can satisfy your whim or preference for a different shade for every room.

A few of the shades most used in fine buildings are (1) Natural or Golden, (2) Silver Gray (very popular), (3) Colonial (dark Mahogany red), (4) Nut Brown, (5) Autumn Brown, (6) Summer Green, (7) Amber, (8) Ivory Enamel, (9) White Enamel, (10) French Gray Enamel. By these few suggestions you can readily see that any color you may wish, however delicate, may be had in perfection with "Beautiful Birch."

As to floors and furniture, read on, please.

Birch, the Hard

In selecting your interior trim, don't overlook one of the most important points—the wood must be *hard*. You should prize that quality and get it.

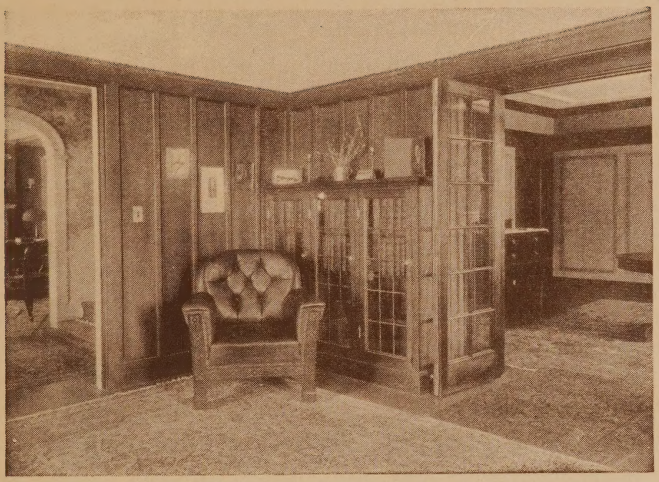
"Hardwood" as the word is ordinarily used, is a trade classification, and all so-called hardwoods are not by any means equally hard. Indeed some "hardwoods" are softer than the harder "softwoods."

"Beautiful Birch" however, is among the very hardest woods in commercial use. Try to drive a nail in it and see how quickly you will run for the awl or gimlet. That is the guarantee of permanence and service through the vicissitudes of years.

The experts in wood of the United States Government Laboratory discovered the hardness of this wood when, by way of test, they pressed steel balls into many different woods. It required 1,320 pounds to press a steel ball about one-half inch in diameter, a little over one-fifth of an inch into Birch. It is one of the hardest of the hardwoods.

Write the United States Forest Products Laboratory at Madison, Wisconsin and obtain a copy of the hardness tests on Birch and other woods.

The advantage of this is that "Beautiful Birch" remains "*Beautiful* Birch." It resists wear and marring, and keeps its finish in good condition for years and years. Even with a family of children there need be no fear of marred and dented woodwork.



A cosy corner in a cosy home. A fine example of what "Beautiful Birch" will do in skillful hands.

Its hardness also makes it one of the standard woods for hardwood floors, which can thus carry out the richness of the Birch trim to the fullest extent. Birch flooring can readily be had in the natural slightly reddish color, or in lighter natural shades, or can be stained to suit your well thought out plans of harmonious color combinations.

For the same reason Birch is a standard wood for white enamel. It holds the enamel permanently and resists the dents and scratches which render some white woodwork so unsightly. Its extreme hardness and even grain make it one of the few woods which can be rubbed to a high polish.

This is an evidence of fine quality in a hardwood, and permits the production of the smooth perfect surface essential for high class and permanent enamel finish. Aside from the polishing quality, hardness has nothing to do with the initial beauty of "Beautiful Birch" but in preserving that beauty the importance of hardness can not be overestimated.

Birch, the Practicable

So Birch is an all-round fine cabinet wood.
The carpenter likes to work with it because he can get results that do him credit.

The architect likes it for *all* its fine qualities.

The owner is enthusiastic about its beauty, durability and—but wait—

Birch, the Economical

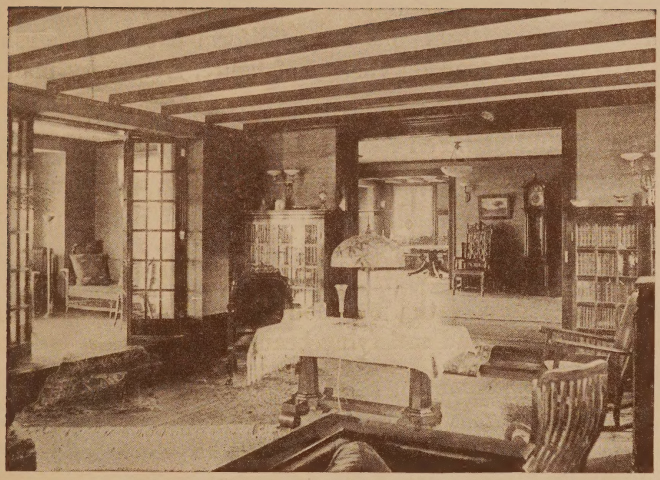
Birch costs less than it is worth. Although it ranks among the very few rich cabinet woods that may be called "finest" (including the costly imported woods) it is an extremely economical wood to use.

A well designed room carefully trimmed, floored and furnished in "Beautiful Birch," and with "Beautiful Birch" veneer doors produces an effect of the highest luxury. Anyone who has built, but has not used Birch, will invariably estimate the cost of the room much above what it really was.

So in living in your Birch trimmed home you will always be conscious of a sense of luxury that will accentuate all the more pleasantly in retrospect the reasonable price you paid.

The economy of the use of "Beautiful Birch" is partly due to the fact that but little of the wood is wasted in working, and partly to location of the forests and other economic conditions, which have so far permitted Birch to be sold at a decidedly attractive price.

No one is immune to the appeal of reasonable price and the economy of "Beautiful Birch" has been partly responsible for the extremely wide use of "Beautiful Birch" in cottage and palace; in magnificent hotels and office buildings (where price is certainly secondary), in stores, in apartments great and small, in hospitals, churches, lodgerooms, halls; in furniture, floors, walls and ceilings. In short, *wherever* a very high class cabinet wood is required "Beautiful Birch" is a frequent and most happy choice—sometimes partly on account of its price, sometimes regardless of price, but **always** for its inherent quality and beauty.



A handsome vista through four handsome rooms trimmed with "Beautiful Birch." Mr. Arthur T. Remick, Architect, New York.

Birch, the Permanent

"Beautiful Birch" does not warp, twist, or split. The texture is firm and the grain does not rise—neither are there those minute open pores that after a time absorb the finish and make a shabby looking "job." Nature builds Birch slowly in the tree—slowly, solidly and well.

The Various Kinds of "Beautiful Birch" and How to Select Them for Their Various Uses

Unselected Birch. Unselected Birch (see photograph on page 15 and others in other books) is a mixture of two beautiful shades, one slightly reddish (the heartwood) and one yellowish (the sapwood). It may be used (1) wherever a striking effect is desired, (2) wherever a dark stain is used, (3) for a remarkably fine and unusual effect in veneer work, such as panels and doors, (4) always with paint or enamel.

It may be stained any color or left in the natural shade.

Red Birch. Red Birch is all or nearly all heartwood. It is used where the richest and most uniform effects are desired, but of course has a wide variety of figure, from very plain to very ornamental.

It is the standard Birch for the finest trim and cabinet work.

Curly Birch. Curly Birch is a special grade and commands a premium. Only here and there in the forest is there a tree or a part of a tree that contains this beautiful wavy grained pearly or "changeable silk" variety of wood. In all the range of beautiful hardwoods, there is nothing which surpasses Curly Birch for delicate and satisfying beauty.

For drawer fronts, top of sideboard, etc., doors, and the conspicuous parts of furniture, people of the best taste are anxious to get Curly Birch. And in the small quantities needed for these purposes, its higher price is not a noticeable item.

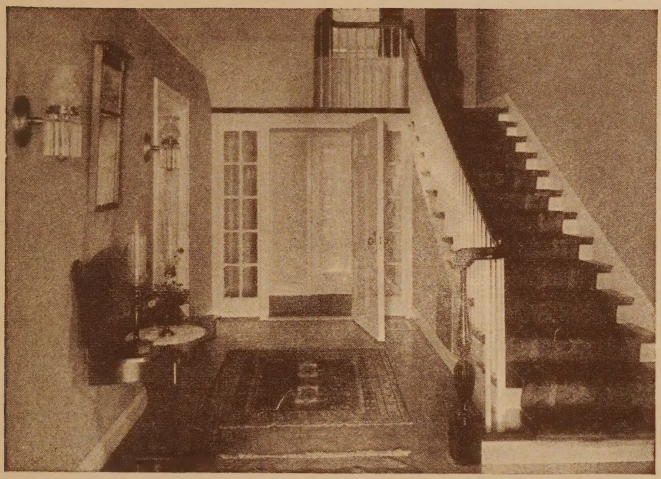
Birch Veneer. Birch Veneer is used for all doors and for paneled work such as wainscoting, furniture tops, drawer fronts, end panels and all similar uses. There is hardly any such thing as a door of *solid* Birch (or any hardwood for that matter).

Making "Beautiful Birch" into veneer enhances its beauty and heightens its figure or grain, but there is a wide variety of effects to choose from as in all Birch. Veneer panels are, of course, much stronger and more permanent, as well as handsomer, than solid ones would be.

"Beautiful Birch" rotary-cut veneer can be had in unselected or Red Birch.

"Beautiful Birch" in the Home

Your own home is a place to live in and live with. It must be restful and comforting to you, cheerful and attractive to your friends; and it must supply a refined atmosphere for the rearing of the little ones. In short, your home must be an expression of yourself.



Messrs. Schmidt, Garden & Martin designed this handsome entrance hall for Mr. James F. Oates, Evanston, Ill. "Beautiful Birch" in white enamel.

"Beautiful Birch" in every room in the house is one of the best ways of attaining this aim. You can have a different color effect in each, exactly according to your own ideas.

And don't forget that the best children in the world have busy careless hands, and happy toes, that are all too apt to mar and scratch the woodwork and furniture. "Beautiful Birch" will take their thumps without complaint, and will not be seriously harmed by anything less than downright abuse. It lasts.

Here is a woodwork color scheme for a comfortable home which has worked out wonderfully in practice. We offer it as a suggestion which may serve as a handy starting point for your own thoughts. You will make no mistake, however, if you decide to carry it out complete:

Two Front Bedrooms. Trim, white enamel on unselected Birch. *Doors*, Colonial Birch (dark red stain) in two-panel or flush veneered effect. (Glass doorknobs are perfect in such a room.) *Furniture*, Curly Birch in Colonial or Golden finish. *Floors*, Red Birch.

Third Bedroom. *Trim* and *doors* of Red Birch in Silver Gray acid strain. The Silver Gray is very popular and is very effective on Birch. Silver Gray doors with French gray enamel or painted trim on unselected Birch may be used if preferred. *Floor*, Red Birch.

Fourth Bedroom. *Trim* and *doors* of Golden (natural) finish on Red Birch. Unselected Birch may also be used, and its beauty is preferred by many. *Floor*, Red Birch.

Bath. White enamel on unselected Birch.

Living Room, Reception Hall and Stairway. Autumn Brown Birch for doors, trim, and at least part of the furniture. The most stunning effects, with all that elusive, restful charm which only beautiful woodwork can give, are obtained in full by the copious use of veneer paneling in these rooms. *Floors*, Red Birch.

Dining Room. *Wainscoting* of red or unselected Birch Veneer. *Doors* of same finished Nut Brown. *Floor*, Red Birch.

Kitchen. Unselected Birch finished Golden (natural). This is a fine, light and durable effect, and makes a kitchen which it is a delight to work in. Some prefer white enamel on unselected Birch, however. *Floor*, Unselected Birch or Maple.

All these finishes, with directions for each, are shown in our set of finished samples of "Beautiful Birch". If you haven't a set, one will be sent free on request, and we also have samples of Birch Veneer for your inspection. Please read the important note on finishing "Beautiful Birch," page 16.

When you move into your new home finished after some such scheme as the above, you will realize how Birch came to be known as "Beautiful Birch," and will wonder how you got so much for so little.

"Beautiful Birch" Apartments

An apartment building has to pay interest on investment, or a profit on its sale. It has to take hard knocks from many

Simple and handsome bedroom in the Burlington Hotel, Burlington, Iowa. Attractive use of Colonial Birch door with white enameled Birch trim.

tenants. It must need the minimum of repairs. Yet it must be extremely attractive or it will not readily be rented.

All these requirements together have made "Beautiful Birch" without question a leading wood for trim, doors and cabinet work in apartments everywhere.

The price of "Beautiful Birch" makes it the best sort of investment. It stands the knocks with the smallest outlay for repairs.

It stays put. And, being one of the world's fine cabinet woods, it calls forth exclamations of praise from tenants.

When it comes to apartment trim, there are no two ways about it—"Beautiful Birch" is **the** wood.

Apartment builders should read the suggested color schemes under **"Beautiful Birch in the Home"** and especially the important note on finishing, page 16. The difference in cost between good finishing and bad finishing is slight—it is mostly a matter of care—care that pays very handsome returns to the investor in hardwood trim.

"Beautiful Birch" for Hotels and Office Buildings

What we have said about apartments applies, every word, with equal force to hotels and office buildings. Economy in first cost with great beauty, durability and low maintenance cost have sufficed, as our illustrations show, to have "Beautiful Birch" specified for the entire trim of many of the largest and finest office buildings and hotels in the United States and Canada, as well as a host of the less important.

The hardness and durability of "Beautiful Birch" trim, floors *and furniture* are a comfort to the hotel staff from chambermaids up, as well as to the proprietor.

The maintenance cost sheet of the Birch trimmed office building or hotel shows why the finest are going more and more to "Beautiful Birch."

"Beautiful Birch" Stores

If there is anywhere in the world that **beauty, durability, economy,** the three big points of "Beautiful Birch," are of supreme value, it is in the fixtures and show window backing of the up-to-date American store.

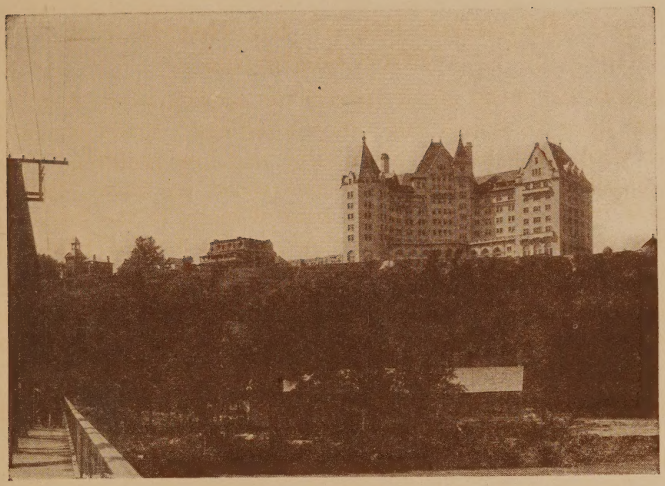
Business prudence demands that original outlay should be kept within reason; yet it is absolutely impossible to avoid the hardest kind of wear on fixtures and trim.

In no other way can you get so *much* effect and such *lasting* effect for the same money as by specifying (and absolutely insisting on) "Beautiful Birch."

"Beautiful Birch" for New Trim in Old Houses

Many of our readers live in houses which they love and would not do without. Building a new home has no attraction for them, yet in many cases their interiors are designed along lines long out of fashion, or perhaps constructed of wood too soft to withstand successfully the wear of years.

If you are the owner of such a home, we cannot too earnestly recommend "Beautiful Birch" to you for its renovation and



The imposing MacDonald Hotel, Edmonton, Alberta, Canada. Handsomely finished in "Beautiful Birch."

rebeautification. Not only does the beautiful and varied grain of Birch lend itself perfectly to the expression of whatever your own ideas may be, but its great hardness and permanence render it particularly appropriate to a home so well-beloved as to merit your thought and care in making it over.

With particular emphasis we offer you the suggestion that you finish your dining room, living room and hall with a high wainscot of large "Beautiful Birch" veneer panels, with doors of the same material. This gives an atmosphere of quiet comfort and luxury practically impossible to obtain by any other means than hardwood.

The advantages in the use of veneer are that the manner in which veneer is cut from the log brings out in all its richness the beauty of the grain, as is of course recognized in all fine modern woodwork and furniture.

Nowadays even pianos are veneered—not because veneer lessens the cost, but because in no other way can the full beauty of the grain of the wood be shown.

Another advantage of the Birch Veneer panels is that they are much more permanent than solid panels would be. They are built up, of course, from several thin layers of wood with the fibres running in different directions, and this makes them resist to the utmost the atmospheric changes which would cause solid wood of the same size and thickness to warp, and to show the fine cracks technically known as "checks."

By modernizing the old home thus with "Beautiful Birch" woodwork and floors, you will have accomplished something of which you will forever be proud.

"Beautiful Birch" in Churches

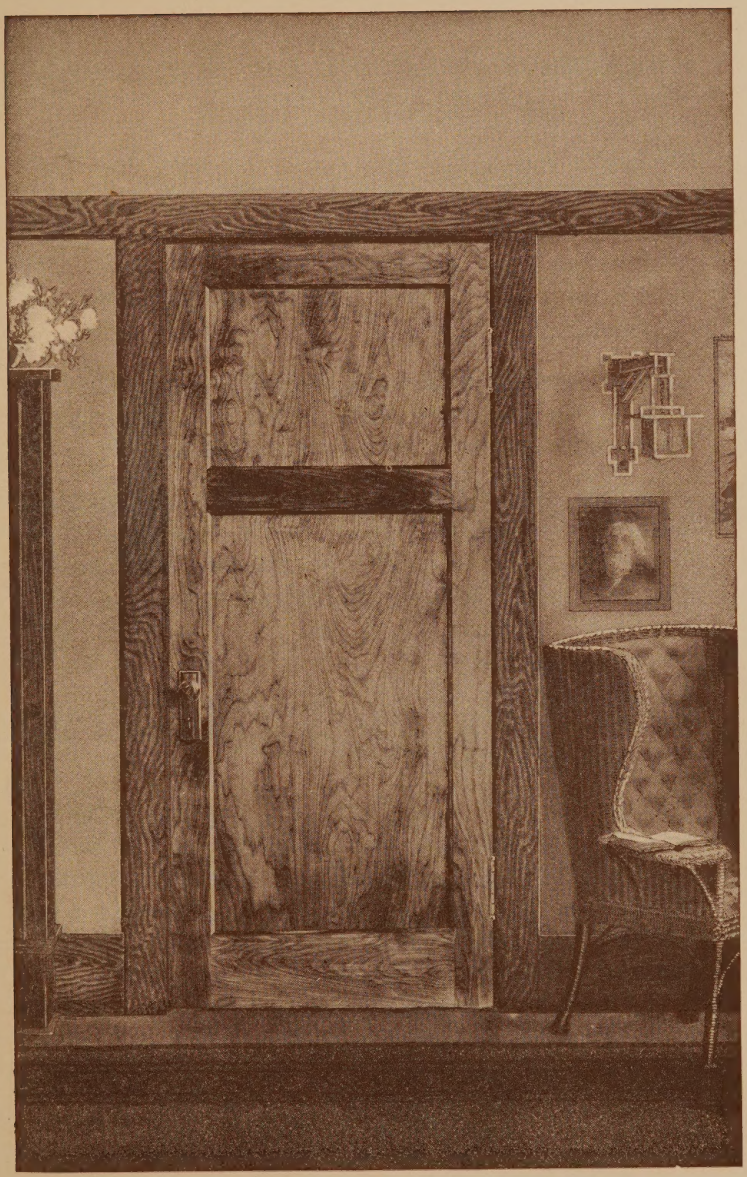
Birch has long been a standard wood for woodwork and pews in churches. Its reasonable price, its hardness and durability which are an advantage in any public place, and its susceptibility to all treatments and finishes make it especially desirable for church work. Many modern churches finished in white enamel on colonial or classical lines have found unselected Birch to be especially fine for their purpose.

"Beautiful Birch" Furniture

It has probably come to your mind that with all its beauty and its great strength "Beautiful Birch" would be an ideal wood for furniture.

"Would be" is not the phrase—it is an ideal wood, and as such is used in the best furniture to an enormous extent.

Much of the beautiful painted and enameled furniture so popular of late years is made of Birch on account of its well known value as a base for paint and enamel, but you will find that a great proportion of the finest of stained and varnished furniture in various shades is also made of it. When you furnish your new home, or the next time you contemplate buying a chair or a table, a bed or a dresser, you will find it well worth your while to ask your dealer to show you what he has in "Beautiful Birch." You will be astonished at some of the beautiful effects that skillful craftsmen have produced with it.



A door of interestingly varied pattern and tone in unselected Birch veneer.

Important Note on the Finishing of "Beautiful Birch"

"Always remember and never forget" that in applying stain and finish to "Beautiful Birch" you are dealing with a high class cabinet wood, which justifies at least reasonable care in performing the process that gives it its final character.

Dollars and dollars worth of all the fine hardwoods are slandered every year by unworthy workmanship or materials in finishing.

Though skillfully logged, sawn and seasoned, carefully graded, shipped many miles, made into trim, doors, furniture and flooring, carefully placed and accurately joined by a good carpenter—a first class job of woodwork in every respect may be utterly spoiled at the last moment by false economy in materials for finishing or by the ignorance or carelessness of a painter's helper.

Prevent it! Pay the utmost attention to the finishing of all high class hardwoods. If you are in doubt about how to finish "Beautiful Birch" to the best advantage, **please write to us** and we will be only too glad to give you full information for the sake of your satisfaction and the reputation of our beautiful wood.

The Northern Hemlock & Hardwood Manufacturers' Ass'n and The Rotary Birch Club

OSHKOSH **WISCONSIN**

CROSBY CHICAGO

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A GUIDE

TO

The Comparative Properties of Northern Hardwoods

TIMBER TESTS

ON

MAPLE - BIRCH - BEECH - ROCK ELM

AND

OTHER HARDWOODS

From Official Reports of the United States Forest Products Laboratory at Madison, Wisconsin

PUBLISHED BY

Northern Hemlock and Hardwood Manufacturers' Association

Oshkosh, Wisconsin

Comparative Physical

From Official Reports of the United States

Results of Tests on
dition in the Form

HARDWOODS		Moisture Content %	Specific Gravity Oven Dry Based on Vol. when air dry	Weight per cu. foot # (air dry)	ST.
COMMON NAME	BOTANICAL NAME				Fiber Stress at elastic limit # per sq. in.
1. ASH, BLACK	Fraxinus nigra	10.4	.50	34	8,30
2. BASSWOOD	Tilia americana	8.4	.38	26	7,30
3. BEECH	Fagus atropunicea	11.2	.63	44	9,00
4. BIRCH, YELLOW	Betula lutea	9.6	.63	44	12,30
5. Chestnut	Castanea dentata	8.6	.44	30	7,40
6. Cottonwood	Populus deltoides	4.7	.43	28	8,60
7. ELM, ROCK	Ulmus racemosa	8.5	.66	44	9,40
8. ELM, SOFT	Ulmus americana	8.8	.51	35	9,20
9. Gum, Red	Liquidambar styraciflua	11.3	.49	34	8,40
10 MAPLE, HARD	Acer saccharum	10.5	.62	43	10,40
11. Oak, Red	Quercus rubra	10.9	.63	44	8,60
12. Oak, White	Quercus alba	11.5	.69	48	8,30
13. Poplar, Yellow	Liriodendron tulipifera	6.1	.41	27	8,40
14. MAPLE, SOFT	Acer Saccharinum	8.2	.48	32	7,70

Wisconsin and Michigan Hardwoods Shown in Black Face Type. Some Northern Mills Also Handle Oak.

Write for Booklet 12-D List of Finest Mills in Wisconsin and Northern Michiga

roperties of Hardwoods

orest Products Laboratory at Madison, Wis.

ood in Air Dry Con- Small Clear Pieces.

C BENDING		IMPACT BENDING		COMPRESSION PARALLEL TO GRAIN						
Modulus of rupture # per sq. in.	Modulus of elasticity — 1000 # per sq. in.	Fiber Stress at elastic limit # per sq. in.	Height of drop causing complete failure 50 # hammer (in).	Fiber Stress at elastic limit # per sq. in.	Maximum Crushing strength # sq. in.	Compression perpendicular to grain fiber stress at elastic limit # per sq. in.	Shearing strength parallel to the grain # per sq. in.	Tension perpendicular to grain # per sq. in.	Hardness, load required to imbed a 0.444" ball to one-half its Diameter in Air Dry Wood.	
									End pounds	Side pounds
13,900	**1,680**	**12,200**	**36**	**5,070**	**6,890**	**1,080**	**1,730**	**730**	**1,250**	**890**
10,200	**1,580**	**11,200**	**16**	**4,430**	**5,980**	**580**	**1,240**	**370**	**590**	**450**
15,000	**1,680**	**19,700**	**35**	**4,870**	**7,400**	**1,340**	**1,970**	**890**	**1,400**	**1,190**
18,900	**2,200**	**21,200**	**58**	**7,720**	**9,760**	**1,410**	**1,880**	**890**	**1,590**	**1,320**
9,700	1,330	11,500	18	4,420	6,620	930	1,160	470	780	580
11,400	1,640	7,500	19	5,060	7,830	730	1,120	700	740	480
16,500	**1,610**	**18,500**	**53**	**5,510**	**8,420**	**1,860**	**2,140**	**740**	**1,730**	**1,470**
14,600	**1,490**	**16,600**	**44**	**5,270**	**6,850**	**850**	**1,740**	**610**	**1,240**	**870**
12,300	1,500	19,300	32	4,960	6,020	790	1,750	870	1,010	720
15,800	**1,820**	**19,100**	**33**	**6,060**	**8,570**	**1,620**	**2,450**	**770**	**2,000**	**1,430**
14,200	1,870	18,500	39	4,610	7,370	1,210	1,760	780	1,500	1,310
15,200	1,780	17,200	38	4,350	7,610	1,340	2,090	800	1,540	1,370
11,800	1,610	18,600	22	4,470	7,480	740	1,170	570	590	450
10,100	**1,210**	**15,000**	**24**	**5,600**	**6,600**	**1,180**	**1,710**	**490**	**1,380**	**750**

Northern Hemlock and Hardwood Manufacturers' Association

Oshkosh, Wisconsin

Northern Hardwoods Are Strongest

The user of lumber wants to know what wood will best serve a given purpose. He needs comparative figures showing the measure of the various mechanical properties of different woods. The tabulation given herein, gives him a comparative idea of the relative strength of the leading hardwoods under official tests made upon small clear specimens in an air dry condition. These figures should not be used for designing except by one who is familiar with the factors of safety to be employed to cover differences which arise through the presence of knots and other defects; the amount of moisture which may be present under service conditions and the checking or splitting which may take place in large sized timbers as they become thoroughly dry. But these figures do give an idea of the comparative strength of these woods when selected under similar conditions. The figures are averages and any given piece will of course vary from these averages.

Hardness is an important quality in interior woodwork furniture, flooring and parts which are fastened together. Resistance to indentation or abrasion means long service in the finished article. It means that the appearance will remain unimpaired for a much longer time than in the case of a softer wood.

Beam Strength.—The Modulus of Rupture is a measure of beam strength, that is, the relative load required to break a beam supported at two ends where the weight is applied in the center of the beam.

Stiffness.—The figures under Modulus of Elasticity do not indicate relative elasticity but rather relative stiffness. In the case of a beam it measures its resistance to deflection and the higher the figure under Modulus of Elasticity, the less will a beam show deflection or bending under a given load.

Impact.—Fiber Stress at Elastic Limit is the greatest stress to which a timber may be subjected under Impact Bending and recover immediately.

Column Strength.—The maximum crushing strength is the maximum ability of a block to sustain a slowly applied load. This property is very important in estimating the strength of a piece of wood used as a support or as a column.

Bearing Areas.—The figures for compression perpendicular to the grain are important in computing the bearing area for metal fixtures attached to wood which must support a load and for determining bearing area for beams, stringers, or joists or in comparing species for railroad ties where the wood must bear the weight of the rail and traffic. It is important in the design of machines having wooden parts as in automobile body frames.

Northern Woods Excel.—An examination of the figures herein will show that Hard Maple, Birch, Beech and Rock Elm have a very remarkable rating in strength qualities and that under many of these tests one or another of these woods excels all others. In these woods also there is a remarkable combination of high values in different strength properties.

Versatility of Northern Supply.—At the same time where high strength rating is not so important and lightness and easy machining are more desirable, the northern hardwoods are represented by Soft Maple, Soft Elm and Basswood. Thus the northern hardwood mills furnish the industrial consumer with woods which will meet nearly any of his requirements. The information brought out in these strength tests has only become available comparatively recently. It is not well known to designers and wood consumers; it merits their study in order that they may determine whether they are now using the best wood for a given purpose.

Inspection.—Members of the Association sell hardwoods under the rules of the National Hardwood Lumber Association.

Woods.—Wisconsin and Michigan mills manufacture lumber of Birch, Hard and Soft Maple, Ash, Hard and Soft Elm, Basswood, Beech, Oak, Hemlock, Tamarack, White Pine, Norway Pine and some other species not produced in great quantity. You can buy most of these woods in mixed cars if desired. Ask for list of mills and their products.

Information For more details, or list of mills, industrial consumers should address

Northern Hemlock and Hardwood Manufacturers' Association
Oshkosh, Wisconsin

AVERY